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| 10/680,265 | 10/07/2003 | Stefan Marinca | T0461.70041US00 | 6382 |

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EXAMINER

ROSSOSHEK, YELENA

| ART UNIT | PAPER NUMBER |
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2825

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05/18/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|-------------------------------|--------------------------------|--|
| Office Action Summary | Application No. 10/680,265 | Applicant(s) MARINCA ET AL. | |
| | Examiner Helen Rossoshek | Art Unit 2825 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 11-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 17, 23, 24, 26, 27, 29-31 and 35-37 is/are rejected.
- 7) ☒ Claim(s) 18-22, 25, 28 and 32-34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the Application 10/680,265 filed 10/07/2003 and amendment filed 02/26/2007.

2. Claims 1-8, 11-37 remain pending in the Application. Claims 9 and 10 have been cancelled from the Application. Claims 11-16 are withdrawn from consideration as non-elected claims.

3. Applicant's arguments have been fully considered but they are not persuasive.

Restriction Requirement Issue

4. Applicant's election with traverse of restricting claims 1-37 in the reply filed on 02/26/2007 is acknowledged. The traversal is on the ground(s) that the Office Action fails to establish that claims 11-16 define a subcombination invention, which has utility by itself or in other combinations. This is not found persuasive because: the subcombination has separate utility such as correcting at a second temperature the slope of a line representative of the desired output voltage over a temperature range to provide the desired output voltage at the second temperature by adding or subtracting a correcting voltage. Moreover the fact that both Group I and Group II are classified in class 716 subclass 2 does not mean that a single search is required, since more features were added into the limitations of the claims of the Group II, which require an additional search.

5. The requirement is still deemed proper and is therefore made FINAL. The elected claims 1-10, 17-37 will be examined in this office action; the non-elected claims 11-16 are withdrawn from further consideration.

Claim Objections

6. Claims 17, 30 are objected to because of the following informalities: in order to keep consistency with a similar limitation of the claim 1 make following change in the claim 17:

claim 17 line 3 after "output" insert --value--

claim 30 line 1 after "wherein the" delete "value" insert --values--

Appropriate correction is required.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 35 and 36 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims are drawn to a computer program per se. A computer program per se is abstract instructions. Therefore, a computer program is not a physical thing (product) nor a process as they are not "acts" being performed. As such, these claims are not directed to one of the statutory categories of invention (See MPEP 2106.01), but are directed to nonstatutory functional descriptive material.

It is noted that computer programs embodied on a computer readable medium or other structure, which would permit the functionality of the program to be realized, would be directed to a product and be within a statutory category of invention, so long as the computer readable medium is not disclosed as non-statutory subject matter per se (signals or carrier waves).

Therefore in response to the Applicant's arguments on the pages 11-14 of the amendment filed 02/26/2007 should be noted that claimed "medium includes a carrier signal" (claim 36) is not permissible. With respect to claim 35 it should be noted that disclosure on the pages 5 and 16 of the instant Specification in support of the claim states medium as "carrier signal or read-only memory"; "a floppy disk or hard disk"; "electrical or optical signal". Since claim 35 does not specify "medium" in particular, it is not clear which medium Applicant intent to mean in claim 35, while signals or carrier waves are not permissible in the claims.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1-8, 17, 23, 24, 26, 27, 29-31, 35-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Marinca (US Patent 6,828,847).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

With respect to claims 1 and 17 Marinca teaches a method for compensating for temperature effects during operation of a semiconductor (within providing a bandgap voltage reference circuit for providing a temperature stable voltage reference (col. 5, ll.8-10)), circuit comprising: scaling an output voltage value of the circuit to a desired output value at a first temperature (within the bandgap voltage reference circuit 20 as shown on the Fig. 2, wherein the output voltage of the circuit is driven to a common first voltage level (col. 11, ll.25-30; col. 5, ll.40-45) by scaling the correcting PTAT voltage (col. 11, ll.45-47; col. 13, ll.11-20; col. 6, ll.3-4)); and matching the output value, at a second temperature, to the desired output value, whereby the desired output value at the first temperature remains unchanged (within providing temperature stable voltage reference (col. 5, ll.8-14) by trimming the proportion of the CTAT correcting current which is summed with the PTAT current (col. 9, ll.60-67) and supplying the second transistor until the desired output voltage is achieved not depending on the temperature (col. 10, ll.1-3; col. 12, ll.45-53)).

With respect to claim 31 Marinca teaches a semiconductor circuit adapted to provide compensation for temperature effects during operation (col. 5, ll.8-13), the circuit comprising a digital control means for: digitally scaling an output voltage of said circuit to a desired output voltage value at a first temperature (within the bandgap voltage reference circuit 20 as shown on the Fig. 2, wherein the output voltage of the circuit is driven to a common first voltage level (col. 11, ll.25-30; col. 5, ll.40-45) by

scaling the correcting PTAT voltage (col. 11, ll.45-47; col. 13, ll.11-20; col. 6, ll.3-4), wherein calibration of PTAT current and CTAT current performed using programmable current DAC/digital-to-analog converter (col. 10, ll.1-3)); and digitally matching said output voltage value, at a second temperature, to said desired output voltage value, whereby said desired output voltage value at said first temperature remains unchanged (within providing temperature stable voltage reference (col. 5, ll.8-14) by trimming the proportion of the CTAT correcting current which is summed with the PTAT current (col. 9, ll.60-67) and supplying the second transistor until the desired output voltage is achieved not depending on the temperature (col. 10, ll.1-3), wherein calibration of PTAT current and CTAT current performed using programmable current DAC/digital-to-analog converter (col. 10, ll.1-3)).

With respect to claims 35-37 Marinca teaches providing and testing bandgap voltage reference circuit for providing a temperature stable voltage reference with temperature curvature correction including computer simulation, which performs by computer program (col. 18, ll.63-67; ll.60-62).

With respect to claims 2-8, 23, 24, 26, 27, 29-30, Marinca teaches:

Claim 2: wherein the step of scaling the output value is effected by the addition or subtraction of a constant voltage value (col. 10, ll.65-67);

Claim 3: wherein the constant voltage value is generated by forcing a constant current through a resistor of the circuit (col. 10, ll.48-49);

Claim 4: comprising generating the current from a balanced combined PTAT and CTAT current (col. 9, ll.56-67);

Claim 5: comprising generating the current from reflecting a reference voltage across the resistor (col. 12, ll.34-35);

Claims 6, 23: wherein the matching step is effected by the addition or subtraction of the difference between two balanced trimming PTAT and CTAT currents (col. 9, ll.56-67);

Claims 7, 24: wherein the trimming currents are such that at the first temperature the difference between each current is zero and the combined current value has a double slope compared to a slope value of each individual current (col. 12, ll.45-53);

Claims 8, 26: between the scaling and the matching step, comprising the additional step of tuning of the trimming currents such that the difference between the PTAT and CTAT currents at the first temperature is equal to zero (within correcting values $I_{CR}(CTAT)$ and $I_f(PTAT)$ to be equal (col. 12, ll.51-53);

Claim 27: wherein the tuning means is provided by means of a tuning DAC coupled to one of the currents, by adjusting a value of a user controlled input to the tuning DAC (within correcting values $I_{CR}(CTAT)$ and $I_f(PTAT)$ to be equal (col. 12, ll.51-53), wherein calibration circuits 21 and 22 shown on the Fig. 2 comprise programmable current DAC (col. 18, ll.35-37));

Claim 29: wherein the value of the user controlled input code is stored in memory (col. 18, ll.60-62);

Claim 30: wherein the values of the trimming currents providing the difference are stored in memory (col. 18, ll.60-62).

Allowable Subject Matter

11. Claims 18-22, 25, 28, 32-34 are objected to as being dependent upon a rejected base claim, but would be allowable if claims 18, 25, 32, 33 are rewritten in independent form. The reason for allowance has been indicated in the Detailed action mailed 09/06/2006.

Remarks

12. In remarks Applicant argues in substance:

a) All of the claims herein relate to compensating for a linear temperature effect using a two-temperature technique. Marinca'847 only relates to a non-linear error component in which compensation is made at a single temperature.

13. Examiner respectfully disagrees for the following reasons:

With respect to a) it should be noted that this argument is irrelevant, since claims of the instant Application do not recite "compensating for a linear temperature effect using a two-temperature technique". Moreover Marinca'847 discloses stable voltage reference over a relatively wide temperature range (col. 9, ll.1-4), wherein the sum of the values I_f and I_{CR} of the PTAT current and the CTAT correcting current, respectively should be constant irrespective of temperature, i.e. the value I_{CR} of the CTAT correcting current should be set equal to the value I_f of the PTAT current in order to provide the correcting PTAT voltage developed across the primary resistor (Col. 12, ll.44-53). Based on at least these disclosures of Marinca'847 Examiner maintains rejection under 35 USC § 102.

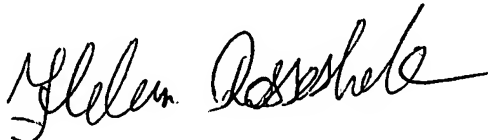
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen Rossoshek whose telephone number is 571-272-1905. The examiner can normally be reached on 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Chiang can be reached on 571-272-7483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HR
05/15/2007



Helen Rossoshek
Examiner
Art Unit 2825